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ABSTRACT

A study examined the teaching behaviors of Mexican American mothers using an "everyday" and a "school-related" task. The sample consisted of 37 Mexican American mother-child dyads. All children were preschoolers, with a mean age of 6.1 years and no history of developmental delays or learning difficulties. All mothers were proficient in English and worked outside the home. The two tasks were shoe-tying (tying shoelaces in a standard bow) and a selective attention task in which children indicated whether two figures were similar in shape and color. The results indicate that the mothers altered their instruction across time and according to the task at hand. Under everyday conditions, the mothers relied primarily on verbal behaviors, such as commands, labeling, directives, and verbal corrections to guide and maneuver children's activity. Under the school task condition, mothers relied on nonverbal behaviors, primarily visual cues and physical corrections. The mothers also instructed their children in a "complementary" fashion, altering their general strategy according to the demand on the child. Regardless of task, however, mothers tended to follow an overall instructional pattern consistent with that proposed by a Vygotskian framework. Finally, mother's educational level was found to be related to her teaching behaviors under the everyday task, but not the school task. (Contains 37 references.) (Author/SV)

**Teaching Everyday and School
Related Tasks: Effective Instruction
Among Mexican-American Mothers**

*by Robert P. Moreno
University of Illinois at Urbana-Champaign*

Working Paper No. 48
August 2000

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Teaching Everyday and School Related Tasks: Effective Instruction Among Mexican-American Mothers

by Robert P. Moreno
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Abstract:

The following study examines the teaching behaviors of Mexican-American mothers using an “everyday” and “school related” task. The study focuses on 1) What are the differences in teaching behaviors among Mexican Americans across tasks, 2) instruction changes over time, 3) changes in teaching behavior relate to children’s performance and the influence of maternal education on instruction. The sample consisted of 37 Mexican-American mother-child dyads. The children’s mean age was 50.8 months ($SD = 6.1$). The results indicate that Mexican-American mothers alter their instruction across time and according to the task at hand. Under everyday conditions, the mothers’ relied primarily on the use of various verbal utterances such as commands, labeling, directives and verbal corrections to guide and maneuver children’s activity. Under the school task condition, the mothers relied on the use of non-verbal behaviors, particularly visual cues and physical corrections. The mothers also instruct their children in a “complementary” fashion, altering their general strategy with respect to the demand on the child. Regardless of the task, however, mothers tended to follow an overall instructional pattern that is consistent with that proposed by a Vygotskian framework. Finally, the study found the mothers’ education level was associated with her teaching behaviors under the everyday task, but not the school task.

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Teaching Everyday and School Related Tasks: Effective Instruction Among Mexican-American Mothers

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Teaching Everyday and School Related Tasks: Effective Instruction Among Mexican-American Mothers

Recognizing that mothers serve as a child's "first teacher," researchers have attempted to understand the influence of mothers, early instruction on children's cognitive and academic development for over three decades. Arguing that a mother's instructional prowess has a significant influence on her child's later academic success or failure, the maternal teaching literature has outlined what constitutes good or effective teaching interactions. Unfortunately, much of this body of research has been limited in its ability to generalize across various ethnic, racial, and/or socioeconomic groups and instructional situations. The study briefly reviews the maternal teaching literature with respect to Mexican-Americans, and compares the effectiveness of Mexican-American mothers' instruction interaction across tasks.

Drawing on the maternal teaching literature, Moreno (1991) put together models of "effective" and "ineffective" maternal instruction. According to this work, an effective mother is one who uses a large amount of verbal instruction, asks many questions and uses abstract words and concepts in her instructions. She uses frequent praise and reinforcing statements and rarely makes negative, corrective or punitive statements. A good maternal instructor uses relatively little demonstration, modeling or non-verbal instructional techniques and gives clear, specific instructions, yet does not stifle her child's decision-making ability. As a result, the ideal maternal teacher fosters a stimulating and enriching instructional environment for her child; her teaching behavior is optimal for teaching complex tasks.

The ineffective maternal teacher uses less verbal and more non-verbal instructions overall compared to her more effective counterpart. She uses more negative and punitive statements and rarely praises her child. She also tends to be more controlling and relies on more intrusive teaching behaviors such as direct commands.

Many studies have been criticized for their methodological and conceptual shortcomings (Cole and Bruner, 1971; Moreno, 1991), however, most criticisms have been directed to the ecological validity of the studies. One reason for the criticism is the overall design of many studies. In their attempt to understand the processes that lead to the low school performance of minority and low income children, many researchers compared the maternal teaching behaviors of one ethnic, racial, and/or socioeconomic group with another (Bee, Van Egeren,

Streissguth, Nyman, and Leckie, 1969; Feshbach, 1973; Hess and Shipman, 1965; Laosa, 1980; Steward and Steward, 1973). Although this design is appropriate to highlight similarities or differences in the teaching behavior among the groups, it is inappropriate to distinguish effective instructional strategies used by specific groups. This is particularly evident with the overall lack of direct performance assessment of the children after instruction (Laosa, 1978, 1980; Martinez, 1988; Steward and Steward, 1973, 1974). Without direct assessments of children's task, researchers are left with subjective interpretations to assess the quality of instruction. In general, this has associated effective maternal instruction with the teaching styles of the Anglo middle-class mothers while linking the teaching behaviors of ethnic minority and poor mothers with ineffective styles (Feshbach, 1973; Laosa, 1980; Olmsted and Jester, 1972).

A second issue related ecological validity is task selection. Many studies involved tasks such as sorting blocks, pyramid puzzles, tinker toys, and board games. Although these tasks are similar to many school-related activities, they differed sharply from many of the more mundane and frequently occurring activities in which mothers typically instruct their preschool children. If the purpose of earlier research was to assess *typical* instructional activities in the home, then a more direct assessment of instruction across various tasks is required. Without such comparisons, researchers have no choice but to assume there is a general teaching pattern irrespective of task.

Other researchers have argued that the ways in which people teach and learn are culturally influenced and rooted in common everyday activities. The nature of instruction, and what constitutes effectiveness, is driven by cultural restrictions and allowances and, therefore, cannot be adequately understood outside their normal context (Cole, 1996; Childs and Greenfield, 1980; Rogoff, Mistry, Göncü, and Mosier, 1993). Unfortunately, this more cultural and contextual approach to understanding maternal instruction has not involved ethnic minorities in the United States. This is problematic given the degree to which various ethnic or racial groups utilize culturally based instructional behaviors which conflict with mainstream educational practices (Jordan, 1984; Sharp, 1989). This raises particular concerns for Mexican-Americans, one of the fastest growing and most educationally at-risk segments of the United States population (Chapa, and Valencia, 1993).

Existing focusing on Mexican-American mothers has made two notable points. First, the research suggests the teaching interactions of Mexican-American mothers resembles the ineffective pattern described earlier. Second, it suggests that maternal education has a notable influence on maternal instruction. For example, a study comparing the teaching strategies of Chicana and Anglo mothers, Laosa (1980) found that differences in instruction among the two groups disappeared when mother's level of education was statistically controlled. Laosa (1982) also persuasively argued that maternal behavior and instruction, in particular, is primarily influenced by formal schooling as opposed to occupation and income. However, more recent research has begun to qualify these earlier findings. Moreno (1997) found that, when comparing the maternal instruction of Mexican-American and Anglos using an "everyday task condition," differences in teaching behaviors persisted even when maternal education was taken into account.

More puzzling, however, was the finding that although the Mexican-American children showed greater gains in task performance, no significant relation was found between the mothers' use of various teaching behaviors and children's task performance. Although the reason is not clear, research examining children's learning and development from a Vygotskian framework suggests one possibility; effective instruction is a dynamic process which changes across the course of instruction (Ellis and Rogoff, 1982; Rogoff, 1986; Wood and Middleton, 1978). The teacher's role is to control or regulate those aspects of the task that the student cannot complete alone, while at the same time allowing the student to complete a greater portion of the task (Díaz, Neal, and Amaya-Williams, 1990; Freund, 1990). Thus, time is a crucial element in instruction.

As instruction progresses, instructional behaviors facilitating performance may constrain children's performance later. This time factor may be crucial for understanding the effective instructional pattern of Mexican-American mothers. It is unclear to the extent which everyday instruction patterns differ throughout the instructional process or how this process differs across tasks.

Method

Participants

The study consists of 37 Mexican-American mother-child dyads. The mean age of the children was 50.8 months ($SD = 6.1$). Of the 37 children in the sample, 19

were male and 18 were female; all preschoolers with no history of developmental delays or learning difficulties.

All mothers were the primary caretaker of their children, yet all worked outside of the home (see Table 1). The mean annual household income of the sample was \$35,366 ($SD = \$9,155$) and the mean age of the mothers was 29.4 years ($SD = 4.87$). The mothers' mean number of years in school were 12.13 years ($SD = 1.90$).

Table 1. Means and Standard Deviations of Demographic Information Items

	<i>Mexican American (n=37)</i>	
	<i>M</i>	<i>SD</i>
Mother's years in school	12.13	1.90
Mother's acculturation level	4.23	.72
Mother's work hrs. (per week)	31.03	11.93
Mother's occupation*	5.47	1.94
Annual household income	\$35,366	\$9,155
Persons in household	5.30	1.05

*Mother's occupation was categorized using the occupation section of the "Four Factor Index of Social Status" (Hollingshead, 1975). The scale ranges from one to nine (1=menial; 2=unskilled; 3=semiskilled; 4=skilled manual; 5= clerical/sales; 6=semi-professionals; 8=lesser professionals; and 9=major professionals).

In order to avoid the confound of language, all mothers were proficient in English and used predominantly English in the household. To verify this, all mothers were administered the Marin and Marin "short acculturation scale" assessment (1991). The scale measures an individual's acculturation level by language use. The scale has shown good psychometric characteristics and has been highly correlated with usual validity criterion (i.e., length of residence in the United States, age of arrival in the United States, and generation level).

Scores closer to "5" indicate high levels of acculturation while those closer to "1" indicate little acculturation. The mean score of the mothers' was 4.24 ($SD = .72$), indicating a highly acculturated sample. As suggested by the score, the mothers were predominately English speaking and conducted all of their instructional interactions with their children in English.

Procedure

The participants were recruited through preschools that serviced low- to middle- income Mexican-American families. The purpose of the study was to understand how mothers typically teach their children in the home. Mothers were asked to teach their child each specified task so that their child could successfully complete it in the allotted time. It was emphasized that the 48-hour goal was to

instruct children so they could become fully competent in each task. Mothers were also informed that they had full control of the time, duration and instructional style within the 48-hour period. Thus, the mothers had the opportunity to incorporate their teaching interaction into their daily routines. Second, mothers were asked to videotape all instruction sessions. Each mother was provided with all the necessary equipment (i.e., video camera, a tripod, and a video tape) and training to record their interactions. The total instruction time was limited to two hours or, the maximum length of one videotape cassette.

Tasks

Each task was selected because it was well within the capabilities of normal preschool-age children and was common to the children's everyday experience.

Shoe-tying. The shoe-tying task required children to tie their shoelaces in a standard bow. A task analysis was used to break down the shoe-tying procedure into 10 steps: pick up laces; cross laces; wrap one lace under the second; pull laces tight; loop first lace; loop second lace; cross both loops; wrap the first loop under the second; pull the loops tight; and produce a bow.

Selective attention. The selective attention task required the children to indicate whether two figures were similar in shape or color. The task consisted of a series of 10 cards and each card presented two figures of familiar items (i.e., house, flower, car, etc.). The figures shared a common dimension (color or shape). The children indicated which dimension the figures shared by placing a response card in the space provided. The response cards consisted of colorless matching figures or a color card. Thus, a child may be presented with a blue house and a red house; the correct response would be a colorless house. Or a child may be presented with a blue house and a blue car. The correct response would be a blue car. The cards were arranged in random order and consisted of five figures and five color stimulus cards.

Prior to any instruction by the mother, a pretest was conducted in which the child was recorded attempting to complete each of the two tasks. This provided a baseline by which the child's task improvement could be measured. The pretest was videotaped where the activity might normally occur (i.e., bedroom, living room, etc.). After the pretest and the initial meeting with the mother, a return visit was scheduled after a 48-hour period. The researcher returned to the home and documented any improvement in the child's task performance. Families were provided a \$25 stipend for their participation.

Measures

The variables selected for analysis were derived from the prototypes of the "effective" and "ineffective" maternal teacher outlined by Moreno (1991) and have been shown to be important constructs for understanding the teaching interactions of mothers with their young children (Díaz, Neal, and Vachio, 1991; Laosa, 1980; Moreno, 1997; Sigel, 1982). All maternal utterances and behaviors were transcribed and then coded according to one of the following categories:

Maternal Teaching Behaviors.

- 1) *Perceptual questions* - Questions in which the answer can be found in the immediate perceptual field ("What is this?" "Where does this loop go?").
- 2) *Conceptual questions* - Questions requiring the child to form a conceptual, mental representation of the task beyond the immediate perceptual field ("What do we do first?" "Why is it important to tie our shoes?").
- 3) *Commands* - Statements that tell the child, in an imperative tone, what to do next ("Make a loop." "Pull!" "Get the card.").
- 4) *Directives* - The mother verbally directs the child's behavior, but in a softer manner than a command, with a collaborative tone ("Let's criss-cross the laces." "Now we can make a loop.") or corrects the child's choice or behavior ("No, not like that.").
- 5) *Praise* - Verbal reinforcement or acknowledgment that the child has performed correctly (e.g., "Good job." "Great!") and/or attribute success to the child's general competence level ("You're a smart kid.").
- 6) *Labeling* - Statements in which the mother labels the task or behaviors involved with the task ("There's a house and a flower." "Here's one loop and here's the other loop.")
- 7) *Other verbalizations* - Statements which did not fall into any other category ("OK," "uh-huh").
- 8) *Modeling or demonstration* - The mother performs aspects of the task for the purpose of the child's observation.

9) *Physical correction* - The mother physically manipulates the task or child to correct the child's response.

10) *Visual cue* - The mother physically points or manipulates objects involved with the task.

Reliability. To determine the inter-rater reliability of the coding scheme, eight mother-child dyads were selected at random. Two independent coders observed and rated each dyad on both tasks. Using the raw frequencies, correlation coefficients were computed for each variable. As can be seen from Table 2, the coefficients ranged from .62 to .92, median = .77, for the shoe-tying task, and from .55 to .96, median = .86, for the selective attention task, demonstrating reasonable reliability.

Table 2. Interobserver Reliability by Task		
	<i>Shoetying</i> (n=8)	<i>Selective Attention</i> (n=8)
Perceptual Questions	.82**	.79**
Conceptual Questions	.71*	.68*
Commands	.92**	.89**
Directives	.86**	.87**
Praise	.84**	.89**
Labeling/Description	.86**	.88**
Other Verbal	.62†	.55
Modeling	.89**	.96**
Physical Correction	.71*	.86**
Visual Cues	.73*	.89**
† $p < .10$		
* $p \leq .05$		
** $p \leq .01$		

Instruction Time. Includes amount total instruction.

Task Performance. In order to evaluate the children's task performance, each child's proficiency level was assessed prior to any instruction (pretest), and again at the end of the 48-hour period. In the shoe-tying condition, a task analysis was used to break down the procedure into 10 steps, and the children received a point for each step successfully completed. A possible score ranged from zero (no steps completed) to 10 (all steps completed). In the selective attention condition, the children were required to describe whether figures were alike by shape or color. Children received a point for each problem card solved correctly. A possible score ranged from zero (no cards answered correctly) to 10 (all cards answered correctly).

Results

Researchers selected 9-minute segments of each teaching interaction for analysis, the first three (T1), middle three (T2), and the final three minutes (T3) of the total

instruction time. This sampling allowed for the comparison of each of the teaching interactions, while accounting for variations in the duration of instruction. The procedure also allowed for the assessment of any changes in the frequency of the instructional behaviors, as well as their relations to children's performance at various times.

The statistical analysis were conducted in three parts. The first examined the overall difference in teaching behavior among the two tasks while the second focused on the mothers' teaching behaviors and their relation to children's performance. The final part of the analysis focused on the relation between the mothers' education level and the use of various teaching behaviors.

Maternal Instruction Across Tasks

The first step of the analysis was to compare the total instruction time in each task. A 1-way ANOVA was performed with TASK (shoe-tying, selective attention) as a factor. No significant differences were found in the amount of total instruction time spent on each task. Next a MANCOVA, was conducted to test for differences in the use of various teaching behaviors across TASK (shoe-tying, selective attention) and TIME (T1, T2, T3) controlling for the child's initial task performance. The analysis revealed a significant multivariate main effect for TASK (shoe-tying, selective attention) on maternal teaching behaviors, $F(10, 62) = 54.02$, indicating that mothers differed in their overall use of teaching behaviors with each task. Subsequent univariate analysis revealed a significant main effect for TASK (shoe-tying, selective attention) on *commands* $F(1, 71) = 11.14$, $p < .01$; *directives* $F(1, 71) = 15.24$, $p < .001$; *labeling and description* $F(1, 71) = 18.70$, $p < .001$; *modeling* $F(1, 71) = 92.10$, $p < .001$; *physical correction* $F(1, 71) = 43.07$, $p < .001$; *visual cue* $F(1, 71) = 31.43$, $p < .001$; (see Table 3). The analysis showed that Mexican-American mothers used more commands, directives, labeling and description, and modeling while instructing shoe-tying. However, mothers used more physical corrections and visual cues when teaching their children the selective attention task.

A significant multivariate main effect was also found for TIME (T1, T2, T3), $F(20, 268) = 17.78$, $p < .001$, indicating that the mothers differed in their use of teaching behaviors as instruction progressed. The univariate analysis revealed a significant main effect for TIME (T1, T2, T3) on *perceptual questions* $F(2, 144) = 44.19$, $p < .001$; *conceptual questions* $F(2, 144) = 11.10$, $p < .001$; *commands* $F(2, 144) = 29.31$, $p < .001$; *directives* $F(2, 144) = 6.04$, $p < .01$; *labeling and description* $F(2, 144) = 46.01$, $p < .001$; *other verbal* $F(2, 144) = 37.17$, $p < .001$;

Table 3. Means and Standard Deviations of Mothers' Teaching Behaviors by Task and Time

	SHOE-TYING			SELECTIVE ATTENTION		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Perceptual Questions ^a	4.54 (3.66)	2.49 (2.39)	1.16 (1.57)	6.30 (3.88)	2.19 (2.56)	1.62 (2.72)
Conceptual Questions ^{a*}	2.70 (2.85)	4.51 (8.64)	1.67 (2.37)	5.92 (3.90)	4.05 (3.40)	1.78 (2.69)
Commands ^{a**}	15.19 (9.45)	11.94 (6.87)	6.97 (6.63)	6.84 (4.8333)	3.35 (2.28)	3.16 (3.29)
Directives ^{a*}	9.03 (10.50)	10.11 (14.33)	5.32 (5.91)	3.59 (2.13)	2.11 (2.03)	1.24 (2.11)
Praise	3.76 (4.00)	5.00 (9.21)	5.40 (4.47)	3.35 (2.65)	4.57 (8.34)	2.64 (2.15)
Labeling/Description ^{a**}	19.35 (7.00)	-10.05 (10.72)	6.00 (5.36)	11.08 (8.82)	5.67 (4.23)	3.65 (5.72)
Other Verbal ^{a*}	11.51 (5.92)	8.59 (6.17)	6.22 (3.83)	13.27 (6.76)	8.00 (5.70)	5.22 (3.06)
Modeling ^{a**}	3.08 (1.60)	1.76 (1.01)	1.89 (1.59)	0.71 (1.01)	0.26 (0.43)	0.32 (0.81)
Physical	1.38	1.27	0.92	5.83	2.79	2.36
Correction ^{a**}	(1.53)	(1.10)	(1.14)	(2.67)	(2.17)	(2.15)
Visual Cues ^{a**}	2.24 (1.85)	1.38 (1.32)	1.13 (1.50)	10.41 (6.52)	4.67 (4.80)	1.58 (3.78)

a Univariate main effect of task

b Univariate main effect of time

c Univariate task x time interaction

modeling $F(2, 144) = 17.35, p < .001$; *physical corrections* $F(2, 144) = 43.87, p < .001$; and *visual cues* $F(2, 144) = 80.35, p < .001$. The findings show that the use of these behaviors decreased as instruction progressed.

In addition, a significant multivariate interaction was found for TASK (shoe-tying, selective attention) x TIME (T1, T2, T3), $F(20,268) = 13.33, p < .001$. The univariate analysis indicated a significant interaction on *conceptual questions* $F(2, 144) = 4.94, p < .01$; *commands* $F(2, 144) = 5.98, p < .01$; *labeling and description* $F(2, 144) = 3.64, p < .05$; *modeling* $F(2, 144) = 4.34, p < .01$; *physical correction* $F(2, 144) = 29.87, p < .001$; *visual cue* $F(2, 144) = 47.89, p < .001$. The analysis suggests that mothers differ in the rate in which they adjust behavior over time across tasks.

Maternal Instruction and Children's Task Performance

T-tests were conducted to determine whether the children improved their performance as a result of instruction. The test showed that children performed significantly better on both the shoe-tying $t(1,36) = 10.50, p < .001$, and the selective attention task $t(1,36) =$

7.87, $p < .001$ after instruction (see Table 4). Next, a series of partial correlations (controlling for children's prescores) was conducted to examine the relation between children's task performance and the total amount of instruction time. No significant correlation was found between the total amount of time spent on instruction and children's task performance.

Table 4. Means and Standard Deviations of Children's Performance Score by Task

	Pre-test		Post-test		t
	M	SD	M	SD	
shoe-tying	3.03	(2.05)	7.84	(3.08)	10.50***
Selective Attention	3.57	(2.15)	8.32	(3.45)	7.87***

*** $p < .001$

Next a series of partial correlations (controlling for children's prescores) were then computed to examine the relationship between the use of teaching behaviors and their children's task performance.

shoe-tying - The analysis (Table 5) showed that the mothers' teaching behaviors were significantly correlated with children's task performance. The correlations varied with each time segment. For example, during the early portions of instruction (T1) the mothers' use of *labeling and description* ($r = .41, p < .01$) and *visual cues* ($r = .41, p < .01$) was positively correlated with children's performance. The use of *conceptual questions* ($r = -.51, p < .001$) and *other verbalizations* ($r = -.43, p < .001$) were negatively associated with performance. During the mid-

Table 5. Partial Correlations of Mothers' Teaching Behaviors and Children's Task Performance Across Time by Task (controlling for prescore)

	SHOE-TYING			SELECTIVE ATTENTION		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Perceptual Questions	-.16	.04	-.58***	-.11	-.15	.01
Conceptual Questions	-.51***	-.29*	.12	-.15	-.12	-.21
Commands	-.14	-.20	-.87***	-.35*	-.33*	-.43**
Directives	-.18	.22	-.72***	-.29*	-.67***	-.53***
Praise	.21	-.17	.52***	-.20*	.05	.28*
Labeling/Description	.41**	-.31*	-.71***	-.26	-.50**	-.48**
Other Verbal	-.43**	.21	-.24	-.08	-.26	-.32*
Modeling	.19	-.26	.62***	-.02	.21	.11
Physical Correction	.21	-.10	-.68***	.17	-.09	.01
Visual Cues	.41**	.25	-.74***	.35*	-.56***	-.40**

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

dle portions of instruction (T2), the mothers' use of *conceptual questions* ($r = -.29, p < .05$) and *labeling and description* ($r = .31, p < .05$) were negatively associated with children's task performance. During the latter portions of instruction (T3), the mothers' use of *perceptual questions* ($r = -.58, p < .001$), *commands* ($r = -.87, p < .001$), *directives* ($r = -.72, p < .001$), *labeling and description* ($r = -.71, p < .001$), *corrections* ($r = -.54, p < .05$), *modeling and demonstration* ($r = -.62, p < .001$), *physical corrections* ($r = -.68, p < .001$) and *visual cues* ($r = -.74, p < .001$) were all negatively associated with children's task performance. The use of *praise*, however, was significantly positively associated with children's performance *praise* ($r = .52, p < .001$).

Selective attention - similarly the analysis showed that the relationship between mothers' teaching behaviors and children's task performance varied across each time segment. During the early portions of instruction (T1), the mothers' use of *visual cues* ($r = .35, p < .05$) positively correlated the performance while the use of *commands* ($r = -.35, p < .05$) and *directives* ($r = -.29, p < .05$) were negatively associated with performance. During the middle portions of instruction (T2), the mothers' use of *commands* ($r = -.33, p < .05$); *directives* ($r = -.67, p < .001$); *labeling and description* ($r = -.50, p < .01$), and *visual cues* ($r = -.56, p < .001$), and were all negatively associated with children's task performance. During the latter portions of instruction (T3), the mothers' use of *commands* ($r = -.43, p < .01$); *directives* ($r = -.53, p < .001$); *labeling and description* ($r = -.48, p < .01$); *other verbal* ($r = -.32, p < .05$) and *visual cues* ($r = -.40, p < .01$), were associated with children's performance, although negatively so. However, the mothers use of *praise* was positively correlated with children's performance ($r = .40, p < .01$).

Maternal Instruction and Maternal Education

Finally, to assess the extent to which the mother's level of education was related to her use of teaching behaviors, a series of partial correlation (controlling for prescore) was conducted for each task. Under the shoe-tying condition, maternal education was negatively associated with the use of *perceptual questions* ($r = -.41, p < .01$), *commands* ($r = -.34, p < .01$), *modeling* ($r = -.57, p < .001$), *physical corrections* ($r = -.46, p < .01$), and *visual cues* ($r = -.48, p < .01$). Thus, more educated mothers used less perceptual questions, commands, modeling, physical corrections, and visual cues than their less educated counterparts. Under the selective attention, however, no significant association between the use of the maternal teaching behaviors and maternal education was found.

Discussion

The findings demonstrate that effective maternal instruction among Mexican-American mothers is complex and best understood within the parameters of a particular task.

First, the results clearly indicate Mexican-American mothers alter their instruction according to the task at hand. Under the "everyday task" condition, mothers relied primarily on the use of various verbal utterances, such as commands, labeling, directives, and verbal corrections, to guide and maneuver children's activity. It is important to note that modeling was not a primary instructional strategy. This is surprising given the nature of the task and previous descriptions of Mexican-American instructions as relying on modeling strategies (Laosa, 1980). The mothers' instruction is best characterized as "talking" their child through the task as opposed to "showing" the child how to do the task. This contrasts with the mothers' instructional pattern under the "school task" condition. Here mothers relied more on the use non-verbal behaviors, particularly visual cues and physical corrections.

The similarities and differences in the teaching patterns among the two tasks become more apparent when the timing of behaviors and their relation to children's task performance is included in the analysis. For example, in the shoe-tying condition, the mothers' use of labeling and description and visual cues were significantly associated with their children's task performance. However, it is *positively* associated with performance early in instruction (T1), and *negatively* associated with performance later in instruction (T3). A similar temporal sensitivity is found for several teaching behaviors. For example, neither the use of commands nor praise is significantly associated with children's performance early in instruction (T1). Their association to children's performance (negative and positive, respectively) is evident only during the latter portions of instruction (T3).

Under the selective attention condition, the mothers' use of visual cues also show a temporal sensitivity. Early during instruction, the use of visual cues are frequent (approximately five times more frequent than in the shoe-tying condition) and positively associated with children's performance. As instruction progresses, the use of visual cues sharply decreases and its relation to performance becomes negative. Thus, the impact of a particular teaching behavior on a child's performance may depend greatly on when it occurs.

By examining the instruction across time the analysis reveals that mothers provide the greatest "control" or "structure" for the child early in the teaching process. Specifically, more effective instruction is distinguished by the early use of labeling and descriptions in the shoe-tying condition, and the use of visual cues in the selective attention condition. As instruction progresses, mothers decrease the use of these more guiding or controlling behaviors, thereby allowing the child to acquire more responsibility. This is indicated by the negative relation between more controlling maternal behaviors during later portions of instruction and children's performance. This teaching pattern is consistent with the that proposed by Vygotsky (1978) and others (Ellis and Rogoff, 1982; Rogoff, 1986; Wood et al., 1978). This perspective argues that more competent teachers are those who interact contingently or "scaffold" students through out the instructional process. As the child becomes more competent, the teacher "withdraws," allowing the child to complete those aspects of the task that are reasonably challenging (Díaz, Neal, and Amaya-Williams, 1990; Rogoff, 1990).

Moreover, the findings show that mothers tend to provide children with the necessary guidance in the least intrusive manner, that is, one that does not interfere with the children's primary mode of activity. For example, despite the "verbal" nature of the selective attention task (e.g., the labeling and matching of colors and figures), the mothers use primarily non-verbal means (i.e., visual cues) to direct and guide their children. Similarly, although the shoe-tying task seems ideal for the use of modeling and other nonverbal instructional techniques, mothers instead rely on various verbal utterances (i.e., commands, labeling, directives, and verbal corrections) to guide their children's activities. Thus, mothers seem to employ a "complimentary" strategy for facilitating their children's task competence. While teaching a task which is primarily non-verbal in nature, mothers verbally guide their children so as not to interfere with the child's actual engagement and learning. Conversely, during more "verbal" oriented tasks, the mother facilitates her child's learning and performance by utilizing nonverbal behaviors. An overreliance on verbal utterances may interfere with the child's concentration and learning.

Finally, as with previous research, a significant relation was found between the use of various teaching behaviors and mothers' level of formal education (Laosa, 1980; Moreno, 1997). Similar to the model of the "effective" maternal teacher discussed earlier, the more educated mothers use less "controlling" and non-verbal behaviors (i.e., commands, modeling, physical correc-

tions, etc.) than their less educated counterparts. However, this was only the case for the shoe-tying condition. Under the selective attention condition there was no significant association between the mothers' formal education level and her teaching behaviors. The reason is not entirely clear.

Formal education is one mechanism by which mothers become socialized to various teaching models, strategies, and behaviors (Laosa, 1980; Uribe, LeVine, and LeVine, 1994). However, if teaching behaviors are rooted in personal and cultural histories, it may be that mothers draw from different cognitive and behavioral "scripts." With respect to the selective attention task, mothers' similar educational history provides them with shared scripts in which to teach "school tasks." Interestingly, Laosa (1980) also describes the more educated Mexican-American mothers of his study as "imitate[ing] the academic style of the school classroom." Everyday instruction, on the other hand, may draw more from more varied personal experiences. These experiences may be more readily indexed by the mother's education level.

Overall, the findings provide additional insight into the instruction of Mexican-Americans. The findings show that Mexican-American mothers alter their teaching behavior according to tasks and these changes appear to be part of a pattern. Thus, these finding argue against over-simplified characterization of Mexican-American maternal instruction. Caution must be exercised when interpreting these findings.

The relatively small number of subjects limited the statistical "power" and generalizability of the study (Kraemer and Thiemann, 1987). The study's results are not intended to generalize recent immigrant and Spanish-speaking segments of the population. It is not clear, for example, if less educated and less acculturated mothers would show the same difference in instruction across tasks. It may be that at lower educational levels, instructional strategies are more similar regardless of task. This is an issue for future research.

Despite the limitations, this study provides a broader understanding of the effective practices within a Mexican-American household. The study helps educators and researchers avoid both an excessively narrow definition of effective instruction, and drawing overly broad generalizations regarding the instructional practices of Mexican-Americans and other U.S. ethnic minorities.

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